

CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

- 1 1. A system for loading product, comprising:
2 a conveyor movable in at least a first direction; and
3 a metering section located proximate to at an end of the conveyor,
4 the metering section including:
5 a plate mechanism movable between a first position
6 proximate the end of the conveyor and a second position remote from the
7 conveyor; and
8 a door adapted to be opened to a feeder, the door at least
9 partially supporting a predetermined amount of product and being
10 positioned between a movable distance of the plate.
- 1 2. The system of claim 1, wherein the product is at least mail pieces.
- 1 3. The system of claim 1, wherein the conveyor is a belt conveyor.
- 1 4. The system of claim 3, wherein the belt conveyor includes cogs which

2 form grooves thereon.

1 5. The system of claim 1, wherein the conveyor is movable towards and
2 away from the metering section to, respectively, load product into the
3 metering section and provide separation between the product on the
4 conveyor and the metering section when the metering section is filled.

1 6. The system of claim 1, wherein the door is a drop gate positioned
2 below a radius of the conveyor at the end.

1 7. The system of claim 1, further comprising an opposing moving plate
2 positioned at another end of the conveyor, the opposing moving plate and
3 the plate providing a pressure on product placed therebetween.

1 8. The system of claim 7, wherein the opposing moving plate is movable
2 independent of the conveyor.

1 9. The system of claim 1, further comprising a sensor for sensing a
2 position of the movable plate and activating the opening of the door.

1 10. The system of claim 1, further comprising a controller which

2 synchronizes or coordinates movement of the movable plate, the conveyor
3 and the door.

1 11. The system of claim 10, wherein the controller stops movement of the
2 conveyor and the plate and opens the door when the metering section is
3 filled with product.

1 12. The system of claim 1, further comprising a solenoid for moving the
2 plate.

1 13. The system of claim 1, wherein the plate is spring loaded to position
2 the plat in an original position after release of the product..

1 14. The system of claim 1, wherein the plate further supports the product
2 and the door is openable to release the product.

1 15. A system for loading product, comprising:
2 a conveyor movable in a first direction and a second direction;
3 a plate positioned at an end of the conveyor and movable
4 independent of the conveyor;
5 a second plate positioned at another end of the conveyor and

6 moved in synchronized movement with the conveyor in at least the first
7 direction; and

8 a door positioned proximate the second plate and adapted to
9 release product to be fed to a feeder.

1 16. The system of claim 15, wherein the product is at least mail pieces.

1 17. The system of claim 15, wherein the conveyor is a belt conveyor
2 having cogs which form grooves thereon, the conveyor is movable
3 towards and away from the second plate to, respectively, load product
4 onto the door and to provide separation of the product.

1 18. The system of claim 15, further comprising a sensor for sensing a
2 position of the second plate and activating the opening of the door.

1 19. The system of claim 15, further comprising a controller which
2 synchronizes or coordinates operations of the plate, the second plate, the
3 conveyor and the door.

1 20. The system of claim 1, wherein the plate is spring loaded.

- 1 21. A loading and transporting system for mail pieces, comprising:
- 1 a first movable conveyor having a plurality compartments each
- 2 having a predetermined width;
- 3 a second moveable conveyor incrementally movable toward a
- 4 loading area of the first movable conveyor defined by at least one of the
- 5 plurality of compartments;
- 6 a holding area designed to hold a plurality of mail pieces on the
- 7 second moveable conveyor;
- 8 a metering section located proximate to the holding area, the
- 9 metering section including:
- 10 a plate mechanism movable between a first position and a
- 11 second position remote from the second moveable conveyor; and
- 12 a door having a length substantially equal to the
- 13 predetermined width of each of the plurality compartments, the door at
- 14 least partially supporting a predetermined amount of mail pieces and
- 15 positioned between a movable distance of the plate; and
- 16 a control which:
- 17 incrementally moves the mail pieces onto the door until a
- 18 number of mail pieces substantially occupies the length of the door; and
- 19 opens the door to load the number of mail pieces to the at
- 20 least one of the each of the plurality compartments.

1 22. The system of claim 21, wherein the each of the plurality of
2 compartments are defined by upstanding paddles.

1 23. The system of claim 21, wherein the second moveable conveyor
2 includes cogs forming gaps or grooves which create a defacto separation
3 of the mail pieces as the mail pieces are deposited onto the metering
4 section.

1 24. The system of claim 21, wherein the holding area is defined by a first
2 plate moving synchronously with the plate mechanism.

1 25. The system of claim 24, wherein the plate mechanism provides a
2 force to hold the mail pieces in a substantially upright position between
3 the first plate and the plate mechanism.

1 26. The system of claim 24, wherein the door is a drop gate positioned
2 above the plurality of compartments.

1 27. The system of claim 21, wherein the controller synchronizing
2 movements of the second moveable conveyor, the plate mechanism and a
3 plate remote from the plate mechanism.

1 28. The system of claim 21, wherein the controller controls an
2 asynchronous movement of the first conveyor with respect to a
3 synchronous movement of the second moveable conveyor, the plate
4 mechanism and a plate remote from the plate mechanism.

1 29. The system of claim 21, wherein the control controls a reverse
2 movement of the second moveable conveyor prior to opening the door to
3 provide a defacto separation of the mail pieces in the holding area and the
4 metering section.

1 30. A method for loading product, comprising the steps of:
2 placing product on a conveyor;
3 incrementing the product towards a metering section until the
4 product placed within the metering section is substantially a same width as
5 a compartment on a feeder conveyor; and
6 releasing the product from the metering section to the compartment
7 on the feeder in a same orientation.

1 31. The method of claim 30, further comprising determining whether the
2 product within the metering section is sufficient to fill the compartment
3 and, if yes, releasing the product to the compartment.

- 1 32. The method of claim 30, further comprising synchronizing movement
- 2 of the product, release of the product and movement of the compartment
- 3 in order to align the product with the compartment prior to releasing the
- 4 product into the compartment.